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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,403	01/22/2004	Chi-Mou Ni	GP-303254	4486
7590 12/14/2005			EXAMINER	
LAURA C. HARGITT			BONK, TERESA	
General Motors Corporation			ART UNIT	
Legal Staff, Mail Code 482-C23-B21			PAPER NUMBER	
P.O. Box 300			3725	
Detroit, MI 48265-3000			DATE MAILED: 12/14/2005	

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/762,403	Applicant(s) NI, CHI-MOU	
	Examiner Teresa M. Bonk	Art Unit 3725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-7, and 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Dieser (US Patent 4,481,803). Dieser discloses a method for bending a tube providing a tubular member extending longitudinally (tube 12) having a generally circular cross-sectional shape (Figures 1-4); providing a bending assembly having a mandrel (24) with a generally circular cross-sectional shape (Figures 1(a-c) and 2) with multiple balls (28) each having a projection extending axially outwardly and wherein the first and second balls have a similar cross-sectional shape (Figures 1(a-c) and 2) and a bend die (14) with a generally elliptical cross-sectional shape (Figures 1a-c);

including the step of positioning a portion of the mandrel inside the tubular member prior to said step of bending and positioning the at least one ball inside the tubular member (Figures 1(a-c) and 2); bending the tubular member about the bend die to form a bent pre-formed tubular member having at least one curved portion having a recess (irregular deformation 52) therein (Figure 3).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dieser in view of Ferree (US Patent 4,727,744). Dieser discloses the claimed invention substantially except for at least one ball having a cross-section less than a cross-section of the mandrel and the first and second ball having a height greater than a height of the third ball. Ferree discloses at least one ball having a cross-section less than a cross-section of the mandrel ("These beads (pivotally connected barrel-shaped force transmitting beads 22) have a smaller maximum diameter than the tube portion 20 through which they will pass" and the first and second balls (22) having a height greater than a height of the third ball (driver ball 26) (See Figure 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Dieser's invention with balls of different heights and structure in order to achieve the desired bend.

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4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dieser in view of Hautau (US Patent 3,155,139). Dieser discloses the claimed invention substantially except for wherein the tubular member is made of a metal material. Hautau discloses a mandrel apparatus for tube bending wherein the tubular member (pipe 16) is made of a metal material (Column 1, line 16). Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to have Dieser's tubular member made of a metal material since it is a known material on the basis of its suitability for the intended use.

5. Claims 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz et al. (US Patent 5,845,382) in view of Dieser. Schultz et al. discloses a method for manufacturing a seat frame assembly comprising the steps of making bent pre-formed (Column 7, lines 18-20) tubular member (300) and positioning the bent pre-formed tubular member between open die halves (302 and 304) mating with one another to define the tubular cavity portion (Figures 6a-f); progressively deform the bent pre-formed tubular member within the tubular cavity portion (Column 7, lines 35-36); applying hydraulic pressure to expand and conform the bent pre-formed tubular member to the tubular cavity portion to form a curved hydroformed tubular member (Column 7, lines 39-52); separating the die halves and removing the curved hydroformed tubular member from the die (Figure 6b)

Schultz et al. discloses the claimed invention substantially except for the step of making the bent pre-formed tubular member further comprises providing a bending assembly having a mandrel with at least one ball and a bend die; further comprising positioning the at least one ball inside the tubular member; the tubular member having at least one curved portion having a recess therein. Dieser discloses a method of bending a tube including the step of making the bent

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pre-formed tubular member (tube 12) further comprises providing a bending assembly having a mandrel (24) with at least one ball (28) and a bend die (14); further comprising positioning the at least one ball inside the tubular member (Figures 1(a-c) and 2); the tubular member having at least one curved portion having a recess (irregular deformation 52) therein (Figure 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Schultz et al.'s invention with Dieser's bending assembly to pre-bend the tubular member before insertion in the hydroforming die to "extend the tube beyond the point of tangency, to still further ensure maintenance of the proper cross-sectional configuration." (Column 1, lines 32-34).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure further shows the state of the art:

JP 63002520 A, JP 05169145 A, US Patent 5,685,190 (shows different structure of mandrel balls)

US Patent 6,766,678 (pre-bent then hydroforming)

US Patent 3,472,056, US Patent 5,222,552 (recesses on tube)

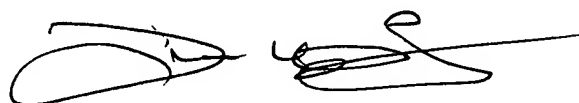
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa M. Bonk whose telephone number is (571) 272-1901.

The examiner can normally be reached on M-F 7:30AM - 5PM with alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris Banks can be reached on (571) 272-4419. The fax phone number for the organization where this application or proceeding is assigned is 571-273-9900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Teresa M. Bonk
Examiner
Art Unit 3725

A handwritten signature in black ink, appearing to read 'Derris H. Banks', with a stylized flourish at the end.

DERRIS H. BANKS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700